

REMARKS

The Office Action states that the amendment to claim 40 to correct antecedent basis issues and the amendments to claims 19 and 21 to cast the claims in independent form are admitted and the finality of the last Office Action is withdrawn. Applicant is proceeding with the understanding that the amendment to claim 24 to correct antecedent basis issue is admitted. Applicant requests that they be notified if their understanding is wrong.

Claims 1-33 and 37-40 are in the instant application of which claims 21 and 22 are allowable, and claims 1-20, 23-33 and 37-40 are rejected. This Amendment cancels claims 5 and 30-38, without prejudice, to reduce the issues; amends claims 1, 4, 6, 9, 13-17, 19, 21, 23, 25, 29, 39 and 40 to more positively recite applicant's patentably novel sheet bending apparatus, and adds new claim 41 to set forth applicant's patentably novel sheet bending apparatus in varying scope.

The Office Action states that claims 21 and 22 would be allowed if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph. The Office Action states the reason for the rejection of claim 1 under 35 U.S.C. 112, second paragraph, but does not state the reason for the rejection of independent claim 21 and claim 22 dependent on claim 21. Applicant is proceeding with the understanding that the basis for the rejection of claim 1 is also the basis for the rejection of claims 21 and 22. Applicant requests that they be notified if their understanding is wrong.

Claims 1-4, 6-29 and 38-40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regards as the invention. Applicant respectfully traverses the rejection of claims 1-29 and 38-40 under 35 U.S.C. 112, second paragraph. Claims 2-4, 6-20, 23-28, 39 and 40 are dependent on claim 1; claims 21 and 22 were discussed above, and claim 29 is an independent claim.

The Office Action alleges that claim 1 teaches an "outer wall" and it further sets forth that said outer wall "defines a boundary" which is "within the boundary

defined by the outer wall." Claim 1 on lines 13-15, and claim 21 on lines 17-19, each recites:

"an outer wall between the first and second molds, the outer wall defining a boundary with the sheet supporting surface and the first end of the passageway within the boundary defined by the outer wall"

The Office Action is associating "with the sheet supporting surface and the first end of the passageway" to the "outer wall." The terms: "the sheet supporting surface" and "the first end of the passageway" are parts of the first and second molds, and can not be said to make up the boundary of the outer wall. However, to eliminate this issue claim 1 is amended as discussed below, and claim 21 is amended, as suggest by the Office Action, by changing "with" to - - wherein - -.

Support for the amendment to claim 21 is found, among other places, in the pending claims. Based on the forgoing, applicant respectfully requests admission of the amendment to claim 21; consideration of claims 21 and 22; withdrawal of the rejection of claims 21 and 22 under 35 U.S.C. 112, second paragraph, and requests allowance of claims 21 and 22.

Claim 1 is amended to recite, among other things:

an outer wall between the first and second molds, with the sheet supporting surface of the second mold and the first end of the passageway of the first mold within boundary defined by the outer wall;

Support for the above amendment to claim 1 is found, among other places, in the pending claims and the drawings. Based on the forgoing, applicant respectfully requests admission of the above amendment to claim 1, consideration of claims 1-4, 6-20, 23-29, 39 and 40, and withdrawal of the rejection of claims 1-4, 6-20, 23-29, 39 and 40 under 35 U.S.C. 112, second paragraph.

Claim 29 does not recite an "outer wall ... by the outer wall." Based on the forgoing, applicants respectfully request reconsideration of, and withdrawal of the rejection of, claim 29 under 35 U.S.C. 112, second paragraph.

Claims 1, 2, 4, 6, 7, 12-18, 24-29, 38 and 40 are rejected under 35 U.S.C. 102(b) as being anticipated by Kuster et al., U.S. Patent No. 5,713,976

(hereinafter also referred to as "Kuster"). Applicant respectfully traverses the rejection of claims 1, 2, 4-7, 12-18, 24-29, 39 and 40 under 35 U.S.C. 102(b) as being anticipated by Kuster; however to eliminate this issue, claim 1 on which claims 2, 4, 6, 7, 12-18, 24, 27 and 28 are dependent is amendment to recite, among other things:

A sheet bending apparatus comprising:

a first shaping mold and an outline shaping mold defined as a second mold, wherein

the second mold has a pair of spaced end rails and a pair of spaced central rails between the spaced end rails, the pair of spaced end rails and the pair of spaced central rails defining a boundary around an open area and portions of the end rails and the central rails providing a sheet supporting surface, and

the first mold has a perimeter, at least one passageway having a first end and a second end, and a major surface in facing relationship to the sheet supporting surface and the open area of the second mold, the major surface comprising a shaping member having a shaped press face and a boundary, the shaping member within, and spaced from, the perimeter of the first mold; a marginal edge between the perimeter of the first mold and the boundary of the shaping member and surrounding the shaping member, and the first end of the at least one passageway in the marginal edge of the major surface of the first mold;

an outer wall between the first and second molds, with the sheet supporting surface of the second mold and the first end of the passageway of the first mold within boundary defined by the outer wall;

an elevator arrangement acting on at least one of the first and second molds to move the first and second molds relative to one

another between a first position, wherein the first and second molds are spaced from one another and the outer wall is spaced from and out of contact with at least one of the first and second molds, and a second position, wherein the outer wall is between and is in contact with the first and second molds to form an enclosure wherein the first shaping mold provides one side of the enclosure, the second mold provides an opposite side of the enclosure, wherein the sheet supporting surface of the second mold, the first end of the at least one passageway at the marginal edge and the shaping member of the first mold face enclosed area of the enclosure, and fluid communication between interior and exterior of the enclosure is provided through the open area, and the at least one passageway.

Claims 4, 6, 13-17 and 25 are amended to, among other things, be consistent with the amendments to claim 1. Support for the amendments to claims 4, 6, 13-17 and 25 is found, among other places, in the pending claims. Based on the forgoing, applicant respectfully requests admission of the amendments to claims 1, 4, 6, 13-17 and 25, and consideration of claims 1, 2, 4-7, 12-18 and 24-28.

The Office Action alleges that the Kuster apparatus presents a "major surface" of a first mold indicated by a bold black line in the annotated excerpt Figure 2 on page 5 of the Office Action, that the major surface defines the claimed features including the "perimeter" and the "shaping member" within and offset from the perimeter, and "at least one passageway in the major surface" in a "non-shaping area", which lies between the shaping member and the perimeter.

Applicant respectfully submits that Kuster does not disclose a shaping mold having the features of the first shaping mold recited in claim 1. More particularly, claim 1 recites a first shaping mold having

a perimeter, at least one passageway having a first end and a second end, and a major surface in facing relationship to the sheet supporting surface and the open area of the

second mold, the major surface comprising a shaping member having a shaped press face and a boundary, the shaping member within, and spaced from, the perimeter of the first mold; a marginal edge between the perimeter of the first mold and the boundary of the shaping member and surrounding the shaping member, and the first end of the at least one passageway in the marginal edge of the major surface of the first mold;

Applicant respectfully submits that Kuster does not disclose a shaping mold having a marginal edge between the perimeter of the first mold and the boundary of the shaping member, and surrounding the shaping member. More particularly, Kuster as shown in Fig. 2 on page 4 of the Office Action has the upper shaping mold including the casing 13 which provides the perimeter of the shaping mold. The outer wall as shown by the Office Action is the wall 43 of the casing 13. Based on the forgoing, Kuster does not show or discloses a marginal edge surrounding the shaping member as recited in claim 1. If the Office Action considers the wall 43 to be the marginal edge, then Kuster does not disclose the outer wall recited in claim 1.

Independent claim 29 having claims 39 and 40 dependent thereon recites a sheet bending apparatus including, among other things:

- a chamber having outer walls, an entrance end, an exit end, an entrance door and an exit door;

- a first shaping mold mounted in the chamber, the first shaping mold having a major surface having a shaping member having a predetermined shaped press face;

- an outline shaping mold defined as a second mold mounted in the chamber in facing relationship to the first mold, the second mold having a pair of spaced end rails and a pair of spaced central rails between the spaced end rails, wherein portions of the end rails and the central rails provide a sheet supporting surface with an open area within the boundary of the sheet supporting surface;

an elevator arrangement acting on at least one of the first and second molds to move the first and second molds relative to one another between a sheet receiving position where the first and second molds are spaced from one another, and a sheet pressing position where a shaped sheet between the first and second molds seals the two are closer to one another than when in the first position;

a vacuum pump connected to the interior of the pressing chamber, and

a conduit having a first end connected to the open area between the shaping rails of the second mold, an opposite second end connected to an air supply outside the chamber, and a portion of the conduit between the first and second ends of the conduit extending through one of the outer walls of the enclosure to move air through the conduit to the open area of the second mold wherein air moving through conduit can only enter interior of the chamber through the open area.

Support for the amendment to claim 29 is found, among other places, in Fig. 17 and the pending claims. Based on the foregoing, applicant respectfully requests admission and consideration of claim 29. Claim 40 dependent on claim 39 will be discussed below with claim 39.

Kuster discloses an annular bending ring 3 but fails to teach as recited in applicant's claim 29:

a vacuum pump connected to the interior of the pressing chamber, and

a conduit having a first end connected to the open area between the shaping rails of the second mold, an opposite second end connected to an air supply outside the chamber, and a portion of the conduit between the first and second ends of the conduit extending through one of the outer walls of the enclosure to move air through the conduit to the open area of the second mold wherein air moving through conduit can only enter interior of the chamber through the open area.

Based on the forgoing, applicant respectfully requests withdrawal of the rejection of claims 1, 2, 4, 6, 7, 12-18 and 24-29 under 35 U.S.C. 102(b) as being anticipated by Kuster.

Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kuster. Applicant respectfully traverses the rejection of claim 39 under 35 U.S.C. 103(a) as being unpatentable over Kuster. Claim 39 is dependent on claim 29. Claim 29 and Kuster were discussed above. Claim 40 is dependent on claim 39.

Claims 39 and 40 are amended to, among other things, be consistent with the amendments to claim 29. Support for the amendments to claims 39 and 40 is found, among other places, in the pending claims and the drawings. Based on the forgoing, applicant respectfully requests admission and consideration of amended claims 39 and 40.

The Office Action alleges that Kuster teaches the use of a piston to move a shaping mold. Applicant for the sake of discussion only and not admitting that Kuster teaches the use of a piston to move an outline mold, respectfully submits that Kuster does not teach a piston having a passageway to move air to the open area of an outline mold.

Based on the forgoing, applicant respectfully requests withdrawal of the rejection of claim 39 under 35 U.S.C. 103(a) as being unpatentable over, and rejection of claim 40 under 35 U.S.C. 102(b) as being anticipated by, Kuster.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kuster as applied to claim 1 above and further in view of Jacques U.S. Patent No. 5,437,703 (hereinafter also referred to as "Jacques"). Applicant respectfully traverses the rejection of claim 3 under 35 U.S.C. 103(a) as being unpatentable over Kuster as applied to claim 1 above and further in view of Jacques and requests reconsideration thereof.

Claim 3 is dependent on claim 1. Claim 1 and Kuster were discussed above where applicant showed that Kuster does not anticipate the subject matter of claim 1. At best, Jacques discloses a ring mold, but fails to cure the defects of Kuster discussed. Based on the forgoing, applicant respectfully requests withdrawal of the rejection of claim 3 under 35 U.S.C. 103(a) as being

unpatentable over Kuster as applied to claim 1 above and further in view of Jacques.

Claims 8 through 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuster as applied to claims 1, 6, 7 and 12 above, and further in view of Skeen U.S. Patent No. 6,629,436B1 (hereinafter also referred to as "Skeen"). Applicant respectfully traverses the rejection of claims 8 through 11 under 35 U.S.C. 103(a) as being unpatentable over Kuster as applied to claims 1, 6, 7, and 12 above and further in view of Skeen.

Claim 9 is amended to be consistent with the amendments to claim 1. Support for the amendment to claim 9 is found, among other places, in the pending claims. Based on the forgoing, applicant respectfully requests admission of the amendments to claim 9 and reconsideration of claims 8 through 11.

Claims 8 through 11 are indirectly dependent on claim 1 through claim 7. Claims 1, 6 and 7, and Kuster were discussed above. In the discussions of claims 1 and 7, applicant showed that Kuster does not anticipate the subject matter of claim 1, e.g. Kuster fails to teach, among other things, the outer wall, and the marginal edge surrounding the shaping member as recited in claim 1. At best, Skeen discloses a bending ring mold having rails, but fails to cure the defects of Kuster discussed above. Based on the forgoing, applicant respectfully requests withdrawal of the rejection of claims 8 through 11 under 35 U.S.C. 103(a) as being unpatentable over Kuster as applied to claims 1, 6, 7, and 12 above and further in view of Skeen.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kuster as applied to claims 1, 17 and 18 above, and further in view of Shetterly U.S. Patent No. 5,713,976 (hereinafter also referred to as "Shetterly"). Applicant respectfully traverses the rejection of claim 19 under 35 U.S.C. 103(a) as being unpatentable over Kuster and Shetterly. Applicant to eliminate this issue has amended claim 19 to depend on claim 1 through claims 17 and 18. Support for the amendment to claim 19 is found, among other places, in the pending claims.

Based on the forgoing, applicant respectfully requests admission of the amendments to, and consideration of, claim 19.

Claims 1, 17 and 18, and Kuster were discussed above. In the discussion of claim 1 and Kuster, applicant showed that Kuster does not anticipate the subject matter of claim 1. At best, Shetterly discloses a valve system for an apparatus for bending sheets, but fails to cure the defects of Kuster discussed above to show that Kuster does not anticipate applicant's claim 1. Since Shetterly does not cure the defects of Kuster, the combination of Kuster and Shetterly can not render the claimed subject matter of claim 19 obvious in view of Kuster and Shetterly.

Based on the forgoing, applicant respectfully requests withdrawal of the rejection of claim 19 under 35 U.S.C. 103(a) as being unpatentable over Kuster as applied to claims 1, 17 and 18 above and further in view of Shetterly.

Claims 20 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuster as applied to claims 1, 21 and 17 above, and further in view of Vanhuysee U.S. Patent No. 5,276,173B1 (hereinafter also referred to as "Vanhuysee"). As noted above, claims 25 and 26 are dependent on claim 1 through claim 23. Applicant respectfully traverses the rejection of claims 20 and 23 under 35 U.S.C. 103(a) as being unpatentable over Kuster as applied to claims 1, 17 and 18 above and further in view of Vanhuysee.

Claim 23 is amended to, among other things, be consistent with the amendments to claim 1. Support for the amendments to claim 23 is found, among other places, in the pending claims. Based on the forgoing, applicant respectfully requests admission of the amendments to claim 23 and reconsideration of claims 20 and 23.

Claims 20 is indirectly, and 23 is directly, dependent on claim 1. Claims 1, 17 and 18, and Kuster were discussed above. In the discussion of claim 1 and Kuster, applicant showed that Kuster does not anticipate the subject matter of claim 1. At best, Vanhuysee discloses a covering for a mold surface, but fails to cure the defects of Kuster discussed above to show that Kuster does not anticipate applicant's claim 1. Since Vanhuysee does not cure the defects of

Kuster, the combination of Kuster and Vanhuysee can not render the claimed subject matter of claims 20 and 23 obvious in view of Kuster and Vanhuysee.

Further, claim 20 recites, among other things, that the openings of the first end of the second plurality of passageways is equal to or less than the size of the opening of the mesh cloth. The Office Action alleges that it is obvious that too light a weave restricts air flow and too loose a weave can result in marring the glass surface; however, the Office Action has failed to show any support for the allegation. Nevertheless, assuming for the sake of discussion only and not agreeing with the allegation of the Office Action, there is no teaching in Kuster and Vanhuysee that the size of the weave opening is equal to or less than the opening of the end of the passageways. More particularly, applicant has determined that the size of the passageway opening and the size of the weave both have to be considered to reduce the marring of a glass surface, and this discovery is recited in claim 20. Still further, there are no teachings in Kuster and Vanhuysee of the features recited in claims 25 and 26 relating to the upper and lower elongated rods to move the molds toward and away from one another.

Based on the forgoing, applicant respectfully requests withdrawal of the rejection of claims 20 and 23 under 35 U.S.C. 103(a) as being unpatentable over Kuster as applied to claims 1 and 17 above and further in view of Vanhuysee, and requests allowance of claims 1-4, 6-20, 23-29, 39 and 40.

Applicant has added new independent claim 41. Support for claim 41 is found, among other places, in Fig. 4. The arguments put forth to patentably distinguish claims 1 and 29 over the applied art is applicable to patentably distinguish claim 41 over similar art.

Based on the forgoing, applicant respectfully requests admission, consideration and allowance of claim 41.

This amendment represents a sincere effort to place this application in condition for allowance. In the event issues remain, the Examiner is invited to call Mr. Andrew Siminerio at 412-434-4645 or the undersigned to discuss those issues before further action regarding the application is taken.

Respectfully submitted,

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